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What the Cities Say
about
Creosoted Wood Block Pavements

The Opinions of
*Civil Engineers, Paving Experts,
Street Commissioners &
Citizens' Leagues*
*with Comment by
The United States Government*

Southern Pine Association
New Orleans, Louisiana

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Addressed to Those Who Pay the Bills for Street Paving

SOUTHERN PINE
SERVICE
ASSOCIATION

FERRY-HANLY SCHOTT ADV. CO.
KANSAS CITY, MO.

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ABOUT
CREOSOTED WOOD BLOCK PAVEMENTS

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CIVIL ENGINEERS
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STREET COMMISSIONERS
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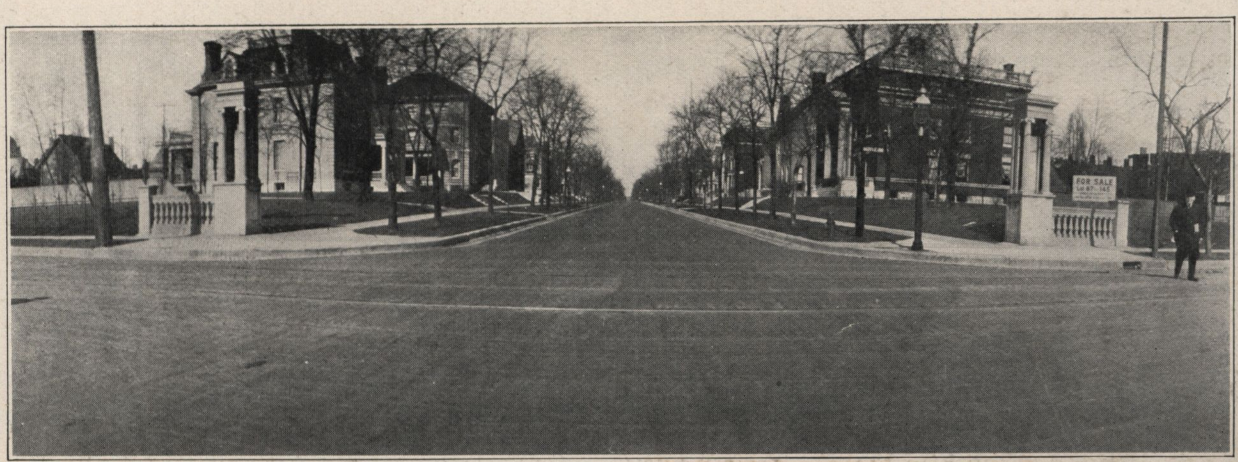

WESTMINSTER PLACE, ST. LOUIS.

Paved with Southern Yellow Pine blocks in 1903.

Published by

The Southern Pine Association

New Orleans, La.

THE CLAIM---AND THE PROOF

The claim for Creosoted Yellow Pine Block Pavement is that it is the *most durable,* the *most economically maintained,* the *least noisy,* the *most sanitary,* and the *least injurious to horses,* of any pavement in existence.

Read the following impartial, authoritative statements and see whether that claim is substantiated.

Those interested in the production of a commodity naturally are expected to be prejudiced in favor of that commodity in comparisons with competing or substitute products; consequently, opinions as to quality from such interested sources usually are discounted. This booklet is published by the Southern Pine Association, the members of which are producers of the Southern Yellow Pine from which the best of creosoted wood block paving material is made. Lest it be assumed that the wood producers are biased, herewith are presented the opinions of engineers, paving experts, street commissions and citizens' organizations of cities that have had experience with Creosoted Yellow Pine Block Pavements, used in test service with other standard paving materials. Such testimony cannot be questioned —there can be no suspicion of personal interest here.

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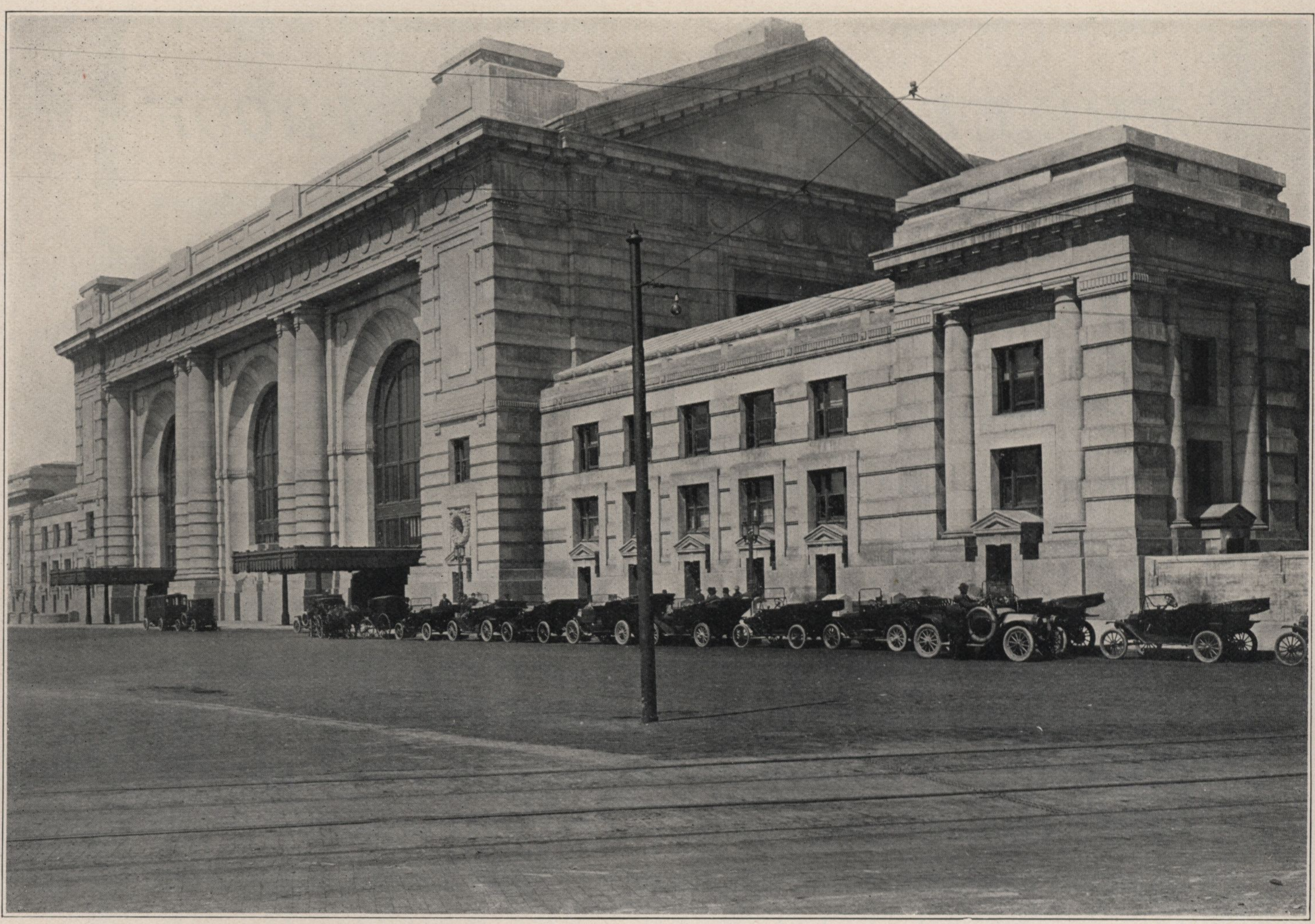


NEW UNION PASSENGER STATION, KANSAS CITY.

Under the terms of its franchise from the city of Kansas City the Union Station Terminal Company is obligated to lay and maintain the paving of the station approaches 200 years. Naturally, the railroads' structural engineers, confronted with such an unprecedented maintenance contract, sought the most durable of surfacing material for the many thousand square yards of heavy trafficked thoroughfare included in the station approaches. And, naturally, their decision rested upon Southern Yellow Pine creosoted blocks. The Terminal Company, in laying this pavement, was influenced only by the desire to provide the smoothest, cleanest, most sanitary and least noisy traffic-ways possible, at the minimum expense for maintenance for 200 years.

LOWER BROADWAY, NEW YORK CITY.

America's most famous street. When creosoted wood blocks replaced granite on this thoroughfare, office and store room values along it were materially increased.

DURABILITY

New York City—

"There are plenty of pavements which are not good for heavy traffic streets, but we know 'Yellow Pine Creosoted Block' is, and the heavier it is pounded the better it wears and endures. The condition of streets paved with wood block, as compared with other streets paved at the same time with other types of pavement, are very favorable to wood block."—*Thos. W. Whittle, Commissioner of Public Works, Borough of Bronx, City of New York.*

"In 1902 the Metropolitan Street Railway Company of New York City decided to experiment with creosoted wooden blocks for paving between its tracks. A small area of Longleaf Pine was laid on Hudson Street, the wood being flanked at either end by granite, the material hitherto used. At the point selected there is a very heavy trucking traffic from the North River wharves, and the stresses on the pavement, where the trucks run with one wheel just outside the car rail, are so great that the granite begins to show a rut in six months, and is renewed almost annually. At the end of four years the wood, though showing a heavy rut, was still sound and in position and good for at least one more year. The granite on either side had been renewed three times during the four years."—*U. S. Department of Agriculture, Forest Service, Circular No. 141, "Wood Paving in the United States."*

(There is no heavier trucking traffic in America than that on Hudson Street, Vesey Street, Lower Broadway, Battery Place, Reade Street, East River Bridge, Blackwell's Island Bridge and Williamsburg Bridge, New York City. All are paved with Creosoted Yellow Pine Blocks.)

The City of Boston—

"Boston was the pioneer in wood block paving in the Eastern States, the first treated wood block pavement being laid in 1900 in Tremont Street. Since then

CHAMPS ELYSEES, PARIS.

Internationally known as "the finest street in the world." Paved with creosoted wood blocks.

more or less of it has been laid each year. The greater part of the pavement is laid with Long Leaf Yellow Pine, which gives the best and most durable pavement. I consider a treated Long Leaf Yellow Pine block suitable for any traffic. Blocks that have been under wear for thirteen years are apparently as serviceable as ever. Several American cities have conducted some extensive experiments in paving problems and some of the most eminent authorities, both at home and abroad, have, after careful investigation and extended comparisons, expressed their firm conviction that, from all considerations, there is no pavement now laid that equals the creosoted wood block pavements."—*James H. Sullivan, Engineer, Public Works Department, Boston, Mass.*

"Tremont Street, Boston, which carries a heavy traffic, was divided in half longitudinally, one side being laid with sheet asphalt, and the other with creosoted pine blocks, both halves of the street being thus subjected to the same traffic. The asphalt side has had extensive repairs and is at present in bad condition, numerous holes having developed. A straight edge laid upon the wood blocks where they adjoin the asphalt shows a difference in level of approximately three-quarters of an inch, proving that the asphalt has worn down that much. To all appearances the blocks although subjected to severe traffic for the past nine years are practically as good as the day they were put down. There has been no maintenance cost whatever."—*Report of Dow & Smith, Paving Experts, to Merchants' Protective Association, Philadelphia, in a street paving investigation.*

The City of Chicago—

"The creosoted wood block pavement has been tried out under various conditions in Chicago, and has given such general satisfaction that it seems now to be only a question of time when it will supersede granite blocks where noise is a factor, asphalt for the more highly traveled and better class of residence streets, and brick on the more progressive of the small business streets."—*William W. Marr, Civil Engineer, Board of Local Improvements, Chicago.*

(Mr. Marr supervised the pavement with Creosoted Yellow Pine Blocks of the famous "Loop District," Chicago, where granite block paving was discarded.)

REGENT STREET, LONDON.

A famous thoroughfare on which the traffic exceeds 16,500 vehicles daily. Paved with creosoted wood blocks.

The City of Baltimore—

"In Baltimore, Md., in the summer of 1901, there were laid several adjacent strips of experimental pavements, including sheet asphalt, creosoted wood, and several kinds of brick. After five years' service, and after passing through the great fire, the wood was in better condition than any of the others."—*U. S. Department of Agriculture, Forest Service, Circular No. 141, "Wood Paving in the United States."*

The City of Detroit—

"We have in Detroit 6.75 miles of creosoted block pavements laid at various times during the past six years. There has been no repairs on any of the streets and they seem to be in better condition than when first laid."—*R. H. McCormick, City Engineer, Detroit, Michigan.* (August 17, 1911.)

"In the year 1905, the city laid its first street of Creosoted Long Leaf Yellow Pine. In 1912 twenty-nine streets were paved with it, with an approximate total of 158,500 square yards. The total amount laid and in process of construction at this time (March, 1913) is 319,820 square yards. For heavy traffic, creosoted wood makes a most excellent pavement and its upkeep cost is exceedingly low."—*Jacob J. Haarer, Commissioner, Department of Public Works, Detroit.*

The City of St. Louis—

"Relative to the use of creosoted wood block for paving purposes, the longer our experience with this class of paving material, the more satisfactory we find it. I know of no paving material having so many good points and that will stand up under all classes of traffic and various climatic conditions as well as wood block." —*J. C. Travilla, Street Commissioner, St. Louis.*

The City of Minneapolis—

"I might say that, everything considered, I believe the modern creosoted block pavement is the most satisfactory pavement now in use."—*Andrew Rinker, City Engineer, Minneapolis, Minn.*

"We have a large amount of this kind of paving in this city, larger than any city in the United States. We

READE STREET, NEW YORK.

Over this street there is an enormous heavy trucking traffic. Paved with creosoted wood blocks.

have about 900,000 square yards, in fact. The streets that have been paved with these blocks have given excellent satisfaction, and it is *the* paving that is almost universally desired by the property owners of the city. It is the opinion of the city engineer's department here that this style of paving, with blocks laid from first class Yellow Pine, is probably the best modern pavement for use in cities for heavy traffic as well as light traffic."—*B. H. Durham, Street Engineer, Minneapolis.*

The City of Cincinnati—

"Creosoted wood block pavements are not affected by variations in temperature. The durability of these pavements is conclusively shown in their continued use for many years on some of the heaviest trafficked streets of European cities. The Rue de Rivoli, Paris, over which pass 42,035 vehicles per day, is paved with creosoted wood blocks, as also is King William Street, London, with its 26,793 vehicles per day. In Liverpool it has been shown that creosoted wood blocks in a street subjected to a traffic amounting to 302,000 tons per yard width per annum have withstood this enormous traffic for twenty years. There is no street in any American city that is subjected to such severe tests. Our creosoted wood block pavements, which are on the main arteries of travel (Cincinnati), have not been laid a sufficient length of time (four years) for the compilation of maintenance and upkeep figures, and besides there have been none to our knowledge."—*H. M. Waite, Chief Engineer, Cincinnati, Ohio.*

The City of Kansas City—

"In my opinion creosoted wood blocks, when properly manufactured and laid, make in many respects the best of all pavements. As to what I consider the best paving where heavy hauling is done, I would say I would choose either the wood block or stone block pavement, depending upon the grades; if the grades exceed three or four per cent I would use the stone block."—*L. R. Ash, City Engineer, Kansas City, Mo.*

(The latest additions to the Creosoted Yellow Pine Block paving in Kansas City began in March, 1915, when the city inaugurated an extensive paving reform campaign by laying the Yellow Pine blocks on Main Street, Walnut Street and Petticoat Lane, the heart of the great retail shopping district.)

MARIETTA STREET, ATLANTA, GA.

The heart of the Southern city's business district. Paved with creosoted wood blocks.

The City of San Francisco—

"The severest test that this pavement (Creosoted Yellow Pine Blocks) has been subjected to in America was at the foot of Market Street in San Francisco, where all the Southern Pacific freight trains emptied their immense cargoes of heavy freight, and which were carted off on trucks, a carload at a time, drawn by from six to one hundred horses (in 1896 I witnessed one hundred gray horses drawing a truck on which was the largest coil of cable wire rope ever seen on this continent), all of which passed over a pavement of wood blocks on six inches of cement concrete. This pavement was put down in 1894, and when I left San Francisco in 1898 the pavement showed but little wear and no break on the surface. This driveway had long been a source of much trouble. In 1893 two asphalt pavements were completely worn out. In 1892 a pavement of granite blocks was destroyed by the traffic.

"The wood block pavement on California Street, San Francisco, in front of the palatial homes of the multi-millionaires of said city in 1898, when I last saw it, after twenty-one years of service, looked so very smooth—not the slightest irregularity perceptible on the surface, no sign of wear or decay—that it impresses everyone as the best of asphalt pavements. I had one of the blocks cut out and found it perfectly sound, although it had been down twenty-one years."—*H. L. Collier, C. E., Commissioner of Public Works, Atlanta, Ga., in a paving investigation report to his city.*

The City of New Orleans—

A portion of the court yard of the New Orleans Gas Light Company is paved with creosoted Yellow Pine blocks, laid thirty-six or thirty-seven years ago. In answer to a query, the following statement was made by the manager of the Gas Company April 5, 1910:

"First, the Yellow Pine Blocks in question were laid in either 1878 or 1879; second, the pavement has never been repaired for wear, but the blocks have been taken up and relaid in numerous spots owing to the changes in the piping which ran underneath them."—*R. E. Slade, Manager.*

BOYLSTON STREET, PARK SQUARE, BOSTON.

Paved with creosoted wood blocks in 1901.

The City of Boston—

"The maintenance of our wood block paving has not cost the contractors or the city anything during the past twelve years, nor do we look for any outlay in the immediate future, judging from present conditions. We are contracting this season for about 40,000 more square yards of Long Leaf Pine wood block paving."—*James H. Sullivan, Engineer, Public Works Department, Boston, Mass.*

The City of Detroit—

"A really good pavement for any purpose will outwear, two to one, the pavement many taxpayers often think they are 'saving money on.' In buying paving it is not what you pay, but what you get for what you do pay for. For heavy traffic creosoted wood makes a most excellent pavement and its upkeep cost is exceedingly low."—*Jacob J. Haarer, Commissioner, Dept. of Public Works, Detroit, Mich.*

The City of St. Louis—

"During 1909, the sixth year of contract maintenance of the 50,000 square yards, or one and one-half miles, of the oldest contract in St. Louis, the wear and tear cost was $2.10, which represents about two and one-half square yards repaired. The cause of wear in every case was the sinking of the concrete foundation beneath the blocks. This, of course, was no fault of the wood itself, but had to be charged to wear and tear of the street. While the first cost of wood blocks in St. Louis was greater than for other types of pavement, there has been practically no maintenance cost in ten years of service."—*From "Municipal Engineering," October, 1912.*

The City of Minneapolis—

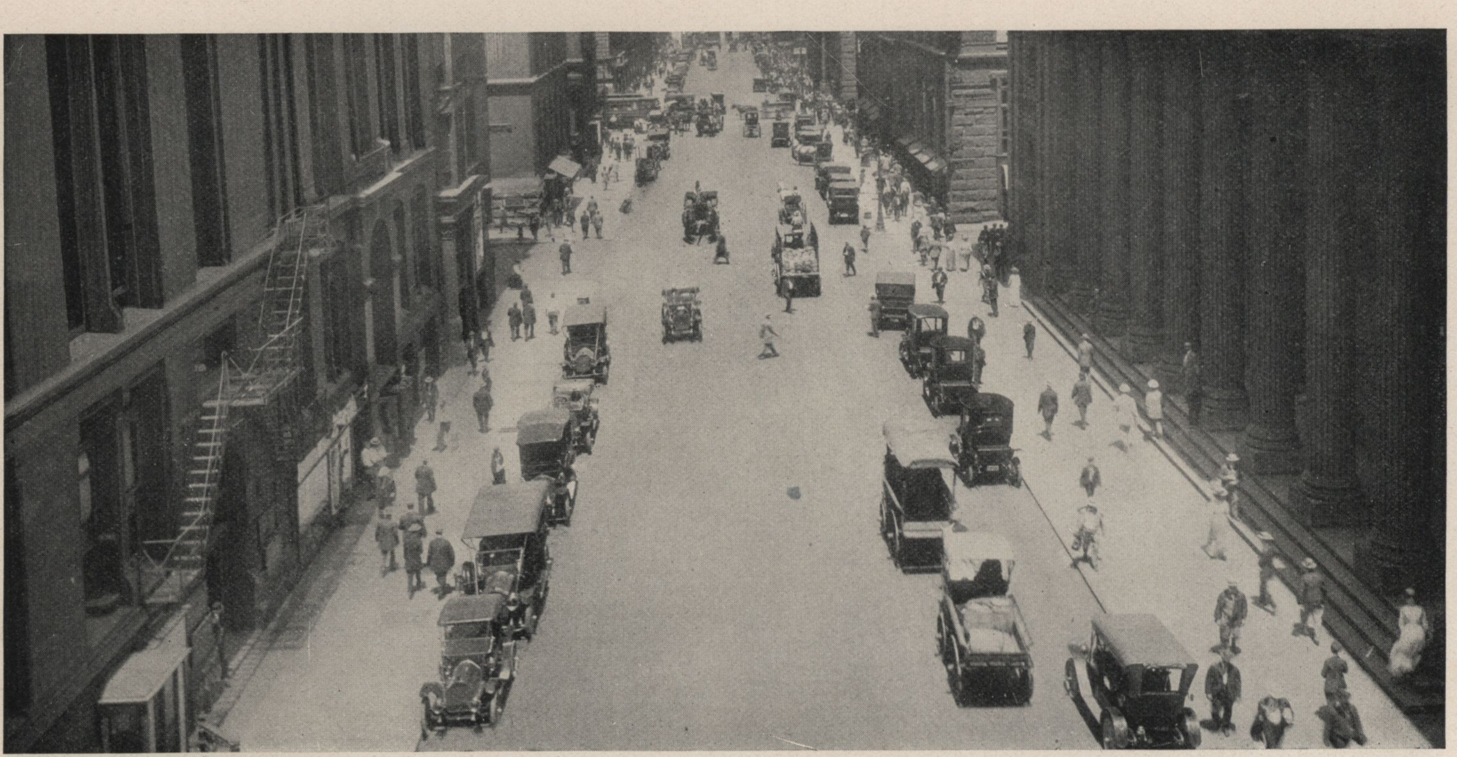
"In my opinion, creosote block pavement is for ten reasons better than asphalt: First, it costs very little more than any other good pavement; second, it will last longer than any other except granite blocks; third, it costs less for repairs than any pavement, and if any repairs should be necessary they can be made easily and cheaply; fourth, cuts for trenches, for laying sewers, conduits or pipes, as seems to be necessary in every growing city, can be made without injury to the pavement; fifth, it is the smoothest without being slippery; sixth, it is practically noiseless; seventh, it is elastic and

NEW CATHEDRAL, ST. PAUL, MINN.

The approaches are paved with creosoted wood blocks. This paving, because of its smoothness and noiselessness, is rapidly coming into universal use on streets in the vicinity of churches, hospitals and schools.

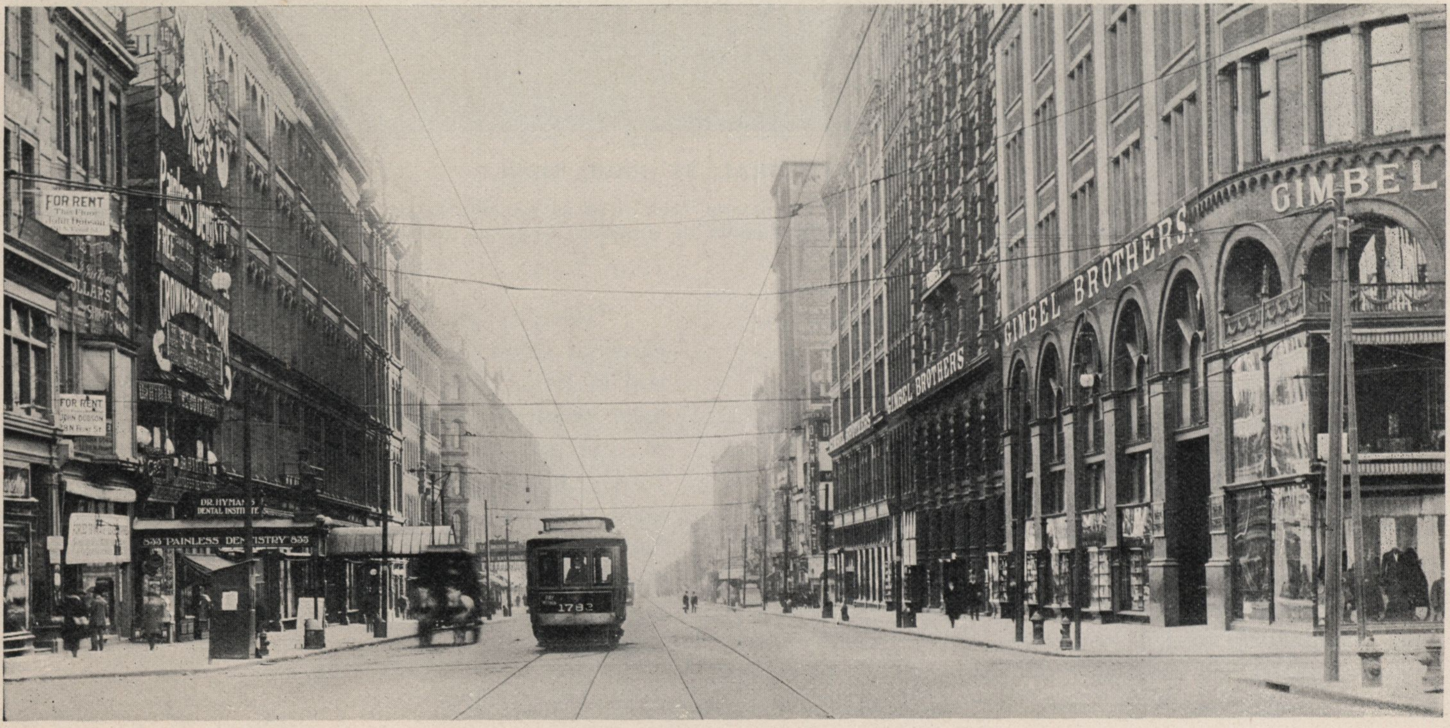
best for horses; eighth, it is the easiest pavement to clean and keep clean; ninth, it is less dusty than any other; tenth, it is the most sanitary of all pavements, in fact the creosote acts as a disinfectant and germ killer. Our first creosote block pavement was laid in 1901; so far we have not paid one cent for repairs, and upon examination we do not find a defective block in any that has been laid in the city."—*C. B. Holmes, Chairman, Board of Public Works, Minneapolis, in a statement made April, 1906.*

"The city of Minneapolis has one million square yards of wood block pavement, the first of which was laid in 1902. The City Engineer states that this pavement required practically no repairs, the cost of same in 1911 being less than one-tenth of a cent per square yard. He also states that the street paved in 1902 is in good condition and looks as if it might last ten years longer."—*Report of G. W. Tillson, Consulting Engineer, Borough of Brooklyn, New York City, to Permanent International Association of Road Congresses, London, England, 1913.*



LA SALLE STREET, CHICAGO.

The heart of the financial district and known as "the Wall Street of the West." Paved with creosoted wood blocks.



MARKET STREET, PHILADELPHIA.

The Quaker City's great retail shopping thoroughfare. Paved with creosoted wood blocks after a commission of citizens had made an exhaustive study of paving in other cities.

MADISON STREET, CHICAGO.

The main artery to the "Loop District," practically all of which is paved with creosoted wood blocks.

CLEANLINESS---SMOOTHNESS---SILENCE

The City of New York—

"The condition of streets paved with wood blocks, as compared with other streets paved at the same time with other types of pavement, is very favorable to the wood blocks. Aside from noiselessness of traffic, I should say that other advantages are that the pavement is sanitary, easily repaired and easily cleaned."—*T. W. White, Commissioner of Public Works, Borough of the Bronx, New York City.*

"Aside from its noiselessness of traffic, creosoted wood block paving is to be commended on account of the low traction resistance, long life, small cost of maintenance, and cleanliness. The pavements are very sanitary, because the creosote used in treating the wood contains a large percentage of highly antiseptic ingredients, namely, phenol, or carbolic acid, and naphthalene. These ingredients are the lighter and more volatile of the preservative oil and continually come to the exposed surface of the block, the only portion which collects germs, and thus evidently keep the street in healthful, sanitary condition."—*L. L. Tribus, Consulting Engineer and Commissioner of Public Works, Borough of Richmond, New York City.*

"Creosoted wood block pavement is noiseless and therefore especially desirable in both business and residential streets as well as all streets on which are located hospitals and schools. It is exceptionally easy to clean and keep in perfectly sanitary condition at minimum expense. People appreciate the uniform smoothness of this type of pavement and we have very little complaint on account of slipperiness."—*J. H. Weinberger, Engineer in Charge, Borough of Queens, New York City.*

The City of Philadelphia—

"Market Street (paved with creosoted wood blocks) is our main retail business street and there is a very large amount of travel upon it. The pavement is noiseless in comparison with other pavements."—*W. R. Benson, Chief of Bureau Highways and Street Cleaning, Philadelphia, Pa.*

BURNS AVENUE, DETROIT.

One of the many streets in "America's most beautiful city" paved with creosoted wood blocks.

The City of Boston—

"Boston was the pioneer in wood block paving in the Eastern states, the first treated wood block pavement being laid in 1905 on Tremont Street. I consider a treated Longleaf Yellow Pine block suitable for any traffic. The chief points of consideration in the paving question are to secure a pavement that is not affected by changes of weather or variations of temperature; that is durable, reasonable in price from the standpoint of total cost; that is sanitary and easily cleaned; that gives least resistance to traction; that affords greatest security to traffic in the elimination as far as possible of accidents caused by uneven, defective, or slippery pavements. Our experience with wood block has been most pleasing to all concerned."—*Jas. H. Sullivan, Engineer Public Works Department, Boston, Mass.*

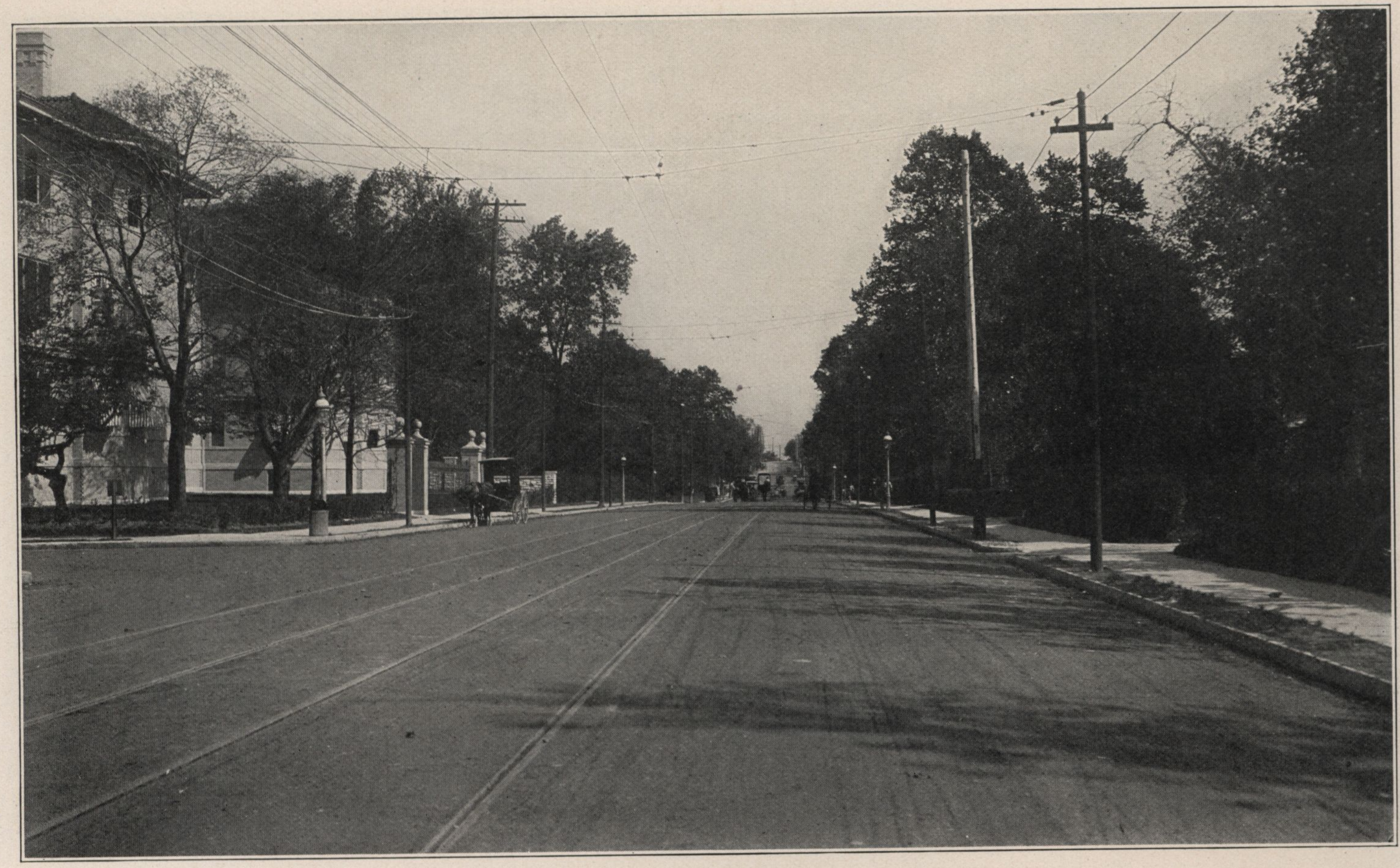
The City of Liverpool, England—

"The advantages of wood block paving may be summed up as follows:

"It is the quietest of all known pavements; wheels make scarcely any noise upon it and there is no clatter of horses' hoofs; it is much safer than either asphalt or granite pavements for horses traveling upon it, as if a horse falls he can rise more easily; the traction necessary upon it, though slightly greater than asphalt, is compensated for by the better footing given to horses; it is clean, etc."—*Percy Boulnois, Engineer of the City of Liverpool.*

The City of Minneapolis—

"The creosoted wood block pavement costs little



READING ROAD BOULEVARD, CINCINNATI.

Paved with creosoted wood blocks in 1911.

more than good asphalt, and while asphalt pavement comes next to creosoted wood block, I believe there is a great difference in favor of creosoted pavement. It is the smoothest without being slippery. It is practically noiseless. It is elastic and best for horses. It is the easiest pavement to clean and keep clean. It is less dusty than any other. It is the most sanitary of all pavements."—*C. B. Holmes, Chairman Board of Public Works, Minneapolis, Minn.*

The City of Cincinnati—

"Creosoted wood blocks make a comparatively noiseless, sanitary and smooth pavement, which is easy to clean, and gives satisfactory results as to durability. They give highly satisfactory results for heavy, medium, or residence street travel."—*H. M. Waite, Chief Engineer, Cincinnati, Ohio.*

The City of Atlanta—

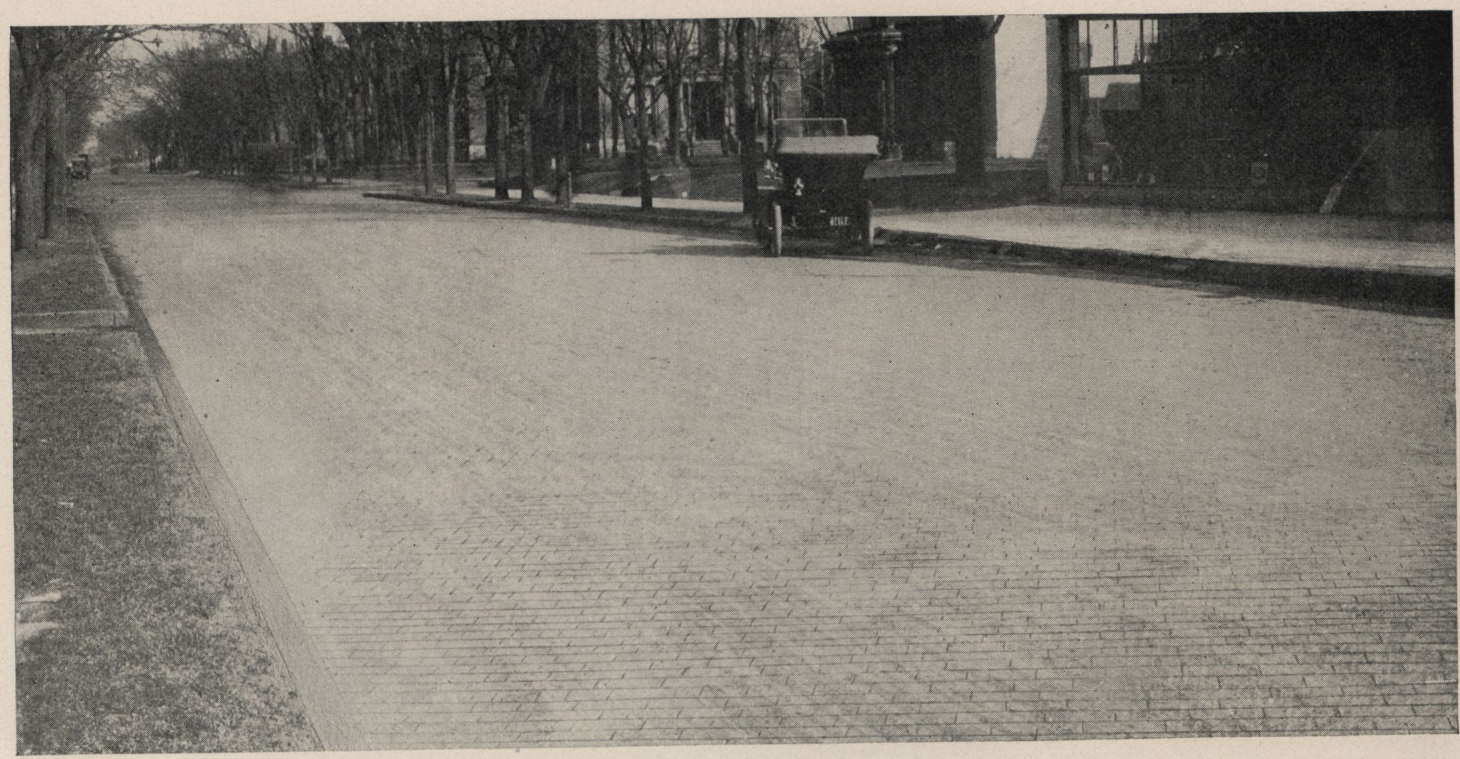
"The only criticism of wood block pavement we heard during our investigations of pavements in New York, Boston, Springfield, Mass., Baltimore and Brooklyn was that in sweaty days they were slippery; but no one, so far as I remember, charged the wood block pavement, even on sweaty days, with being more slippery than asphalt. There is nothing about a wood block pavement to grind into dust, and it is therefore the most free from dust of all pavements and the easiest to keep clean, and therefore the cleanest. Properly put down, it is the smoothest of all pavements—no wavy surface or saucer holes so prevalent in asphalt pavements. It is much safer than either asphalt or granite for horses traveling upon it. This being the beginning of the automobile age, the modern wood block pavement certainly is the ideal pavement for such travel, being smooth, free from dust;

WESTMINSTER BOULEVARD, ST. LOUIS.

This shows the appearance of the creosoted wood block pavement after thirteen years' service. This pavement is today in perfect condition, and has cost but 1 cent a yard for maintenance since it was laid.

set grain up, no chance for slivers. It seems a machine would last forever on such a pavement."—*H. L. Collier, Civil Engineer, Commissioner of Public Works, Atlanta, Ga.*

Creosoted wood block paving is used so extensively in our business districts, not only on account of its durability under heavy traffic conditions and low cost of maintenance, but on account of its noiselessness. The question of noise in the business district of our larger cities is becoming a serious matter. Creosoted wood block paving certainly has done its share in doing away with the roar and din of traffic. We find creosoted wood very easy to clean. It does not pulverize, wear away and grind into dust. The absolute smoothness makes sweeping and cleaning it an easy matter, and it does not require frequent sprinkling."—*R. M. Clayton, Chief of Construction, City of Atlanta.*



TENTH STREET, MINNEAPOLIS, PAVED WITH CREOSOTED WOOD BLOCKS IN 1902.

This was the first street in Minneapolis on which the modern creosoted wood block was used. Since then a million yards of that paving have been laid in the city.

THE KIND OF CREOSOTED WOOD BLOCK

There is little room for divided opinion as to the best wood to use in the manufacture of creosoted blocks for paving. Engineers and experts everywhere have so generally agreed on the overwhelming superiority of Southern Yellow Pine that in most instances it is taken for granted that wood is meant when wood block paving is mentioned. Even in Europe, where the price of Southern Yellow Pine imported from this country is necessarily high and many other woods unknown here are available, the product of this country is given universal preference. It is possible that tests and experiments of the future may discover a wood equal to the Southern pine as a paving material, but up to the present all substitutes have been found wanting to a greater or less degree in those peculiar qualities of breaking and shearing strength, toughness, stiffness, and endurance that are characteristics of "the Wood of Service." All of the instances quoted herein, an unprecedented array of proof of superiority possible for no other paving material, have been in relation to the use of Southern Yellow Pine as the wood for making the blocks.

"Wood" Means "Southern Yellow Pine"—

Some cities, situated close to large supplies of other woods, have experimented with a view to substituting some more readily available variety for Southern Yellow Pine. Minneapolis was one of those cities. Here is what Ellis R. Dutton, assistant city engineer of Minneapolis, in a paper read at the American Road Builders' Association convention at Cincinnati, in December, 1912, said of the test:

"Quite a few people opposed creosoted wood block pavement, remembering the experience we had had with the old cedar blocks which had been used so extensively. Notwithstanding the opposition, a street was paved in 1902, the city purchasing four-inch Southern Yellow Pine blocks treated with twelve pounds of 'Kreodone' oil, which was a trade name for a better quality of creosote oil.

TENTH STREET, OAK CLIFF, DALLAS, TEXAS.

Paved with Yellow Pine creosoted wood blocks. The Southern city has used enormous quantities of "the ideal paving" on its principal thoroughfares.

Minneapolis Tried Them All—

"This pavement looked so good and seemed to be so satisfactory that in 1903 it was determined to lay more of this class of paving. Minneapolis is situated in a pine country and is one of the largest centers of pine lumber manufacture, so it was asked, 'Why not use our native Norway pine for the work?' The matter was discussed and finally it was decided to use Norway pine, treating it the same as the yellow pine.

"In the paving of Third Avenue South, in 1903, there was left over from 1902 about 300 yards of the yellow pine blocks, which were used in this street, and the remainder was Norway pine. In 1911 I took out some samples of these two classes of wood, which had received exactly the same travel and wear, and found that the yellow pine blocks showed a wear of ⅛ inch and the Norway pine blocks twice as much—¼ inch. This was an actual comparative test of the two kinds of wood on the same street and under the same conditions.

"We continued the use of Norway pine, tamarack and hemlock until 1911, when we returned to the yellow pine blocks, which seemed to give the best results, especially on heavily traveled streets."

John Wilson, city engineer of Duluth, Minn., tells of a similar experiment in Minneapolis in which the United States Government participated. The following is an extract from an account of his in "Municipal Engineering" of November, 1913:

According to Government Rating—

"Some four or five years ago the United States Government laid as an experiment on a street in Minneapolis a wood pavement made up of a great many different kinds of wood, all treated with 1.09 creosote oil, the idea being to ascertain the relative merits of these different kinds so that a selection of material could be made according to the traffic on any particular street or the availability of any material. The kinds of wood used were longleaf pine, Norway pine, tamarack, Douglas fir, Western larch, white birch and hemlock. The longleaf pine was used to serve as a standard of comparison. The conclusion was reached, after an examination of the pavement four years after it was laid, that the species used will be tentatively grouped in accordance with the result of this inspection in order of their value for creosote oil paving materials as follows: (1) Longleaf pine;

MAIN STREET, ONE OF THE PRINCIPAL THOROUGHFARES OF JOPLIN, MO.

Paved with creosoted wood blocks. The younger growing cities are rapidly adopting the wood block pavement as an aid to substantial growth and development.

(2) Norway pine, white birch, tamarack, Eastern hemlock; (3) Western larch; (4) Douglas fir.

"In the East, as a matter of fact, the longleaf yellow pine block has been used almost entirely up to the present time, the principal exception being black gum. This, however, has not given entirely satisfactory results. Yellow pine stands up exceedingly well under end compression."

Southern Yellow Pine creosoted wood blocks are revolutionizing paving methods all over the world, but particularly in the cities of America. The United States Government sensed the importance of the change a good many years ago and made extensive experiments in an effort to find other woods than Southern Yellow Pine equally suitable for paving. Eight years ago, in December, 1907, the experts of the Forest Service said in a report to the Department of Agriculture, "Wood Paving in the United States":

"For more than seventy years wood has been used for street paving. In the beginning, however, incomplete knowledge and wrong methods led to failure, and it is only within the last ten years, or since the introduction of the present creosoted longleaf pine block, that wooden pavements have been laid with greater success."

Merit Reduced to Figures—

The United States Government, through its Forest Service Department, made exhaustive tests of the comparative strength and durability of woods suitable for creosoted block street paving. These tests were to de-

BELLE ISLE BRIDGE, DETROIT.

Paved with creosoted wood blocks. This is the city's heaviest traveled roadway for pleasure vehicles.

termine not only the resistance in general to the wear caused by heavy traffic, but particularly to establish the relative "shearing strength" of the various woods—the tendency of the fibers of the material to split apart or slip one on another when subjected to great stress. The varieties of wood commonly used in the manufacture of creosoted paving blocks are Southern Yellow Pine, Tamarack, Norway Pine, Douglas Fir, Eastern Hemlock and Redwood. Here is the result of the Government tests, in which Southern Yellow Pine was taken as a standard of comparison:

Woods Tested	Shearing Strength (Lbs. per Sq. In.)	Depth Necessary Equal Strength of Longleaf Pine (In.)
Southern Yellow Pine (Longleaf)	1,688	3.5
Tamarack	1,372	4.14
Norway Pine	1,262	4.68
Douglas Fir	1,180	5.01
Eastern Hemlock	1,148	5.15
Redwood	674	8.78

Since other Government tests have proved Southern Yellow Pine much superior to the other paving woods in qualities of hardness, density, toughness and strength,

NEW TWELFTH STREET VIADUCT, KANSAS CITY.

Paved with creosoted wood blocks. Everywhere in America Southern Yellow Pine creosoted blocks are supplanting all other materials for paving on bridges and viaducts.

this final proof of surpassing excellence in "resistance to shear" placed that wood in a class by itself as a material for street paving blocks.

Southern Pine for Special Uses—

What the Forest Service trials demonstrated already had been appreciated by engineers generally, and Southern Yellow Pine is universally specified as the wood for use in paving bridges, railroad terminals and other thoroughfares whose peculiar situation concentrates heavy traffic over them, and for speedways, where uniformity of wear and absolute dependability of material are of vital importance. The largest and most heavily traveled inter-city bridges in America are paved with Southern Yellow Pine creosoted blocks—notably the East River and Blackwell's Island bridges, New York City; the Rush Street bridge, Chicago, and Belle Isle bridge, the heaviest traveled thoroughfare for pleasure vehicles in the city of Detroit. Railroad terminal companies everywhere, obligated under their franchises to maintain paving on the approaches to their depots, choose and use Southern Yellow Pine creosoted blocks, as may be seen on the approach of the new Union Passenger Station, Washington, D. C.; the magnificent new Union Station at Kansas City, and the Southern Pacific freight depot at the foot of Market street in San Francisco, where, it is said, the stress of freight trucking is so great as to subject the pavement to the severest test of any thoroughfare in this country—a traffic equaled only by the approaches to the great steamship docks in Liverpool, England, also paved with Southern Yellow Pine creosoted blocks.

Notable examples of the choice of Southern Yellow Pine for speedway paving are the new speedways of Chicago and New York, under construction contract at this writing, June, 1915.

Quiet for Hospitals, Churches, Schools—

In conclusion, the paving student's attention is directed particularly to one further quality of wood block pavements—their noiselessness—which not only is contributing greatly to their growing popularity for use on much traveled business streets, but is making them the one thoroughly satisfactory material for paving streets in the vicinity of hospitals, churches and schools, where the elimination of noise is of the greatest importance.

GRISWOLD STREET, DETROIT.

A principal business thoroughfare paved with creosoted wood blocks.

NOTE THIS

Southern Yellow Pine creosoted wood block pavements, to give perfect service and satisfaction, *must be properly laid.* When Southern Yellow Pine blocks, creosoted by modern methods, fail to make a perfect pavement, more durable than any other material and with the least possible maintenance expense, it invariably is due to wrong methods in laying.

Kindly remember, then, that while the Southern Pine Association, publisher of this book, has no creosoted wood blocks to sell, it has a staff of engineers, skilled in the business of laying creosoted wood blocks in a scientific manner, and these engineers are at the service at all times, free of charge, of any city engaged in paving its streets with Southern Yellow Pine creosoted blocks. The association also will be glad to supply printed specifications for creosoted wood block paving, covering the quality of the wood, the method of creosoting, and the manner of laying.

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